

44. A method according to Claim 43, further comprising providing the sensor at a location not being irradiated with the exposure beam.

45. A method according to Claim 44, further comprising providing the sensor on the diaphragm on a side facing the wafer.

46. A method according to Claim 37, wherein the diaphragm comprises an iris diaphragm.

47. A method according to Claim 37, wherein the diaphragm comprises a turret having a plurality of openings.

48. A method according to Claim 37, wherein said manufacturing step comprises a resist process and a development process. --

REMARKS

Applicants request favorable reconsideration and allowance of the subject application in view of the preceding amendments and the following remarks.

Claims 25-48 are presented for consideration in lieu of claims 1-24, which have been canceled without prejudice or disclaimer. Claims 25 and 37 are independent. Support for these

claims can be found in the application, as filed. For example, the Examiner's attention is directed to the specification beginning at page 7, line 9 (and particularly page 12, lines 13-20).

New Claims 25-48 were not submitted earlier as it was believed that the previously presented claims would be found allowable. It is submitted that the Examiner's familiarity with the subject matter of the present application will allow an appreciation of the significance of the new claims herein without under expenditure of time and effort. Accordingly, it is submitted that entry of the amendment is appropriate.

Claims 1-4, 6-8, 11-15, 17-19, and 22-24 stand rejected under 35 U.S.C. § 103 as allegedly being obvious over Ushida '518 in view of Shiraishi '950. In addition, Claims 5, 9, 10, 16, 20, and 21 stand rejected as allegedly being obvious over those citations and further in view of Nishi '341. Without conceding the propriety of these rejections, Claims 1-24 have been cancelled. These rejections are thus deemed to be moot and should be withdrawn.

Claims 25-48 are submitted to be patentable over the cited art.

Claim 25 relates to an exposure apparatus comprised of a projection optical system which projects a pattern of a first object onto a second object by using EUV. The projection optical system includes a diaphragm arranged in a vacuum, and a cooling device which cools the diaphragm.

Claim 37 relates to a device manufacturing method comprising the steps of projecting, through a projection optical system having a diaphragm and a cooling device, a pattern of a reticle onto a wafer by using EUV, and cooling, by using the cooling device, the diaphragm arranged in a vacuum. The last step includes manufacturing a device from the wafer.

In accordance with Applicants' claimed invention, an exposure apparatus and method is capable of cooling a diaphragm which is arranged in a vacuum. In this manner, superior imaging ability is provided.

As discussed in the previous Amendment of January 8, 2002, the primary citation to Ushida relates to a projection exposure apparatus that includes an illuminating optical device for illuminating a projection negative and a projection optical device for projection-exposing the projection negative illuminated by the illumination optical device onto a substrate. As understood, a diaphragm 10a in Ushida is not arranged in a vacuum, nor is the diaphragm cooled.

Shiraishi '950 relates to an exposure method and projection exposure apparatus in which a light shielding plate has a set of fixed peripheral openings with a fluid path through the center of the plate. As read, the light shielding plate is not provided in a vacuum and Shiraishi does not use EUV .

Finally, the Nishi patent relates to an exposure apparatus and a method for measuring a quantity of light with temperature variations and was cited for its teaching of an iris diaphragm and a turret with a plurality of openings.

Without conceding the propriety of combining the art in the manner proposed in the Office Action, it is submitted that such combinations still fail to teach or suggest Applicants' claimed invention. For example, the proposed combinations do not teach or suggest an exposure apparatus or method in which a projection optical system, which uses EUV, includes a diaphragm arranged in a vacuum and cooled by a cooling device.

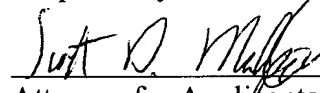
For the foregoing reasons, Applicants submit that the present invention, as recited in independent claims 25 and 37, is patentably defined over the cited art, whether that art is taken individually or in combination.

The dependent claims also should be deemed allowable, in their own right, for defining other patentable features of the present invention in addition to those recited in their respective independent claims. Further individual consideration of these dependent claims is requested.

Applicants further submit that the instant application is in condition for allowance. Favorable reconsideration, withdrawal of the objection and rejections set forth in the above-noted Office Action and an early Notice of Allowance are requested.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should be directed to our address listed below.

Respectfully submitted,



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MARKED-UP VERSION OF THE CLAIMS

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